

(No Model.)

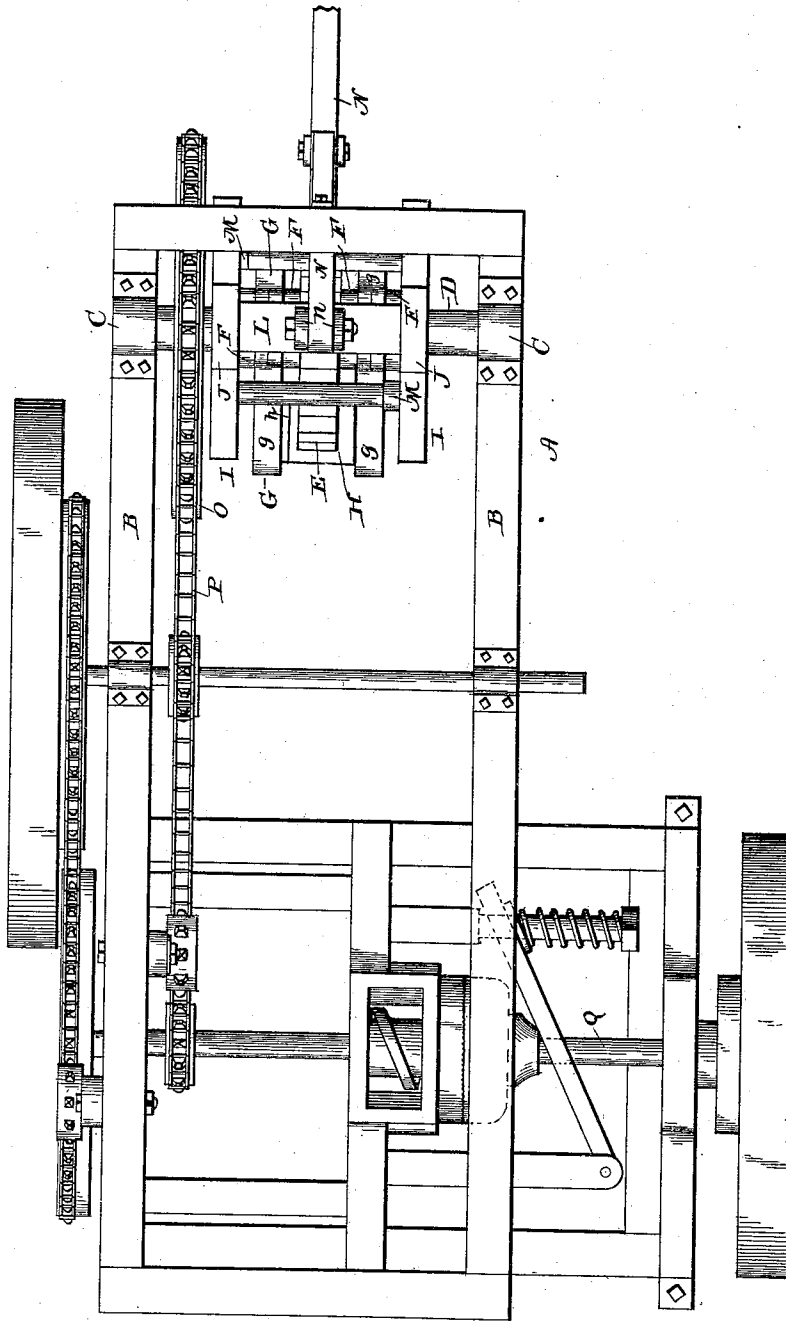
2 Sheets—Sheet 1.

A. S. TRAGETHON.
POWER TRANSMITTER.

No. 484,066.

Patented Oct. 11, 1892.

FIG. 1-



Witnesses

Jas. H. McLaughlin
D. P. McLaughlin

By *his* Attorneys,

Inventor

A. S. Tragethon

C. A. Snow & Co.

(No Model.)

2 Sheets—Sheet 2.

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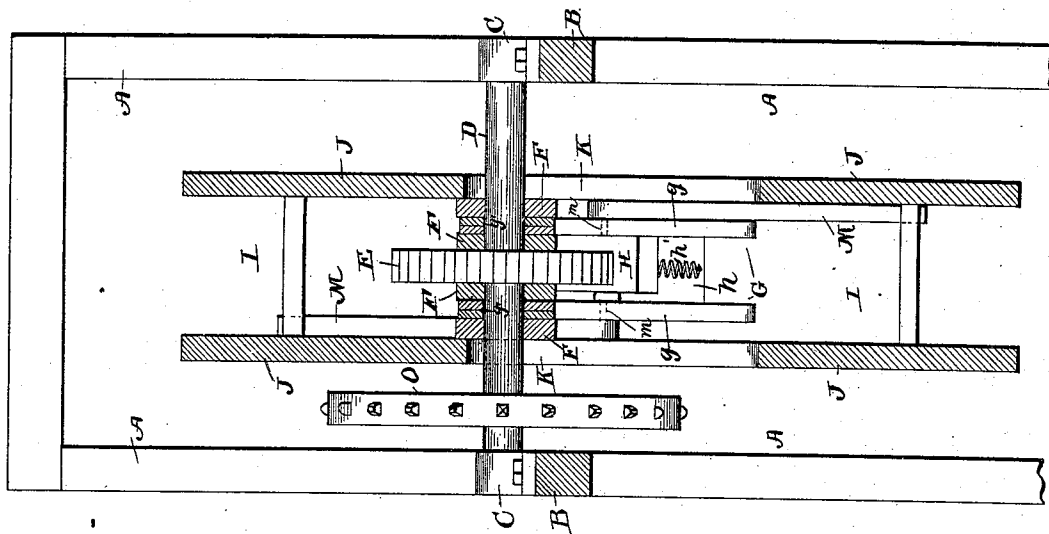


FIG. 3-

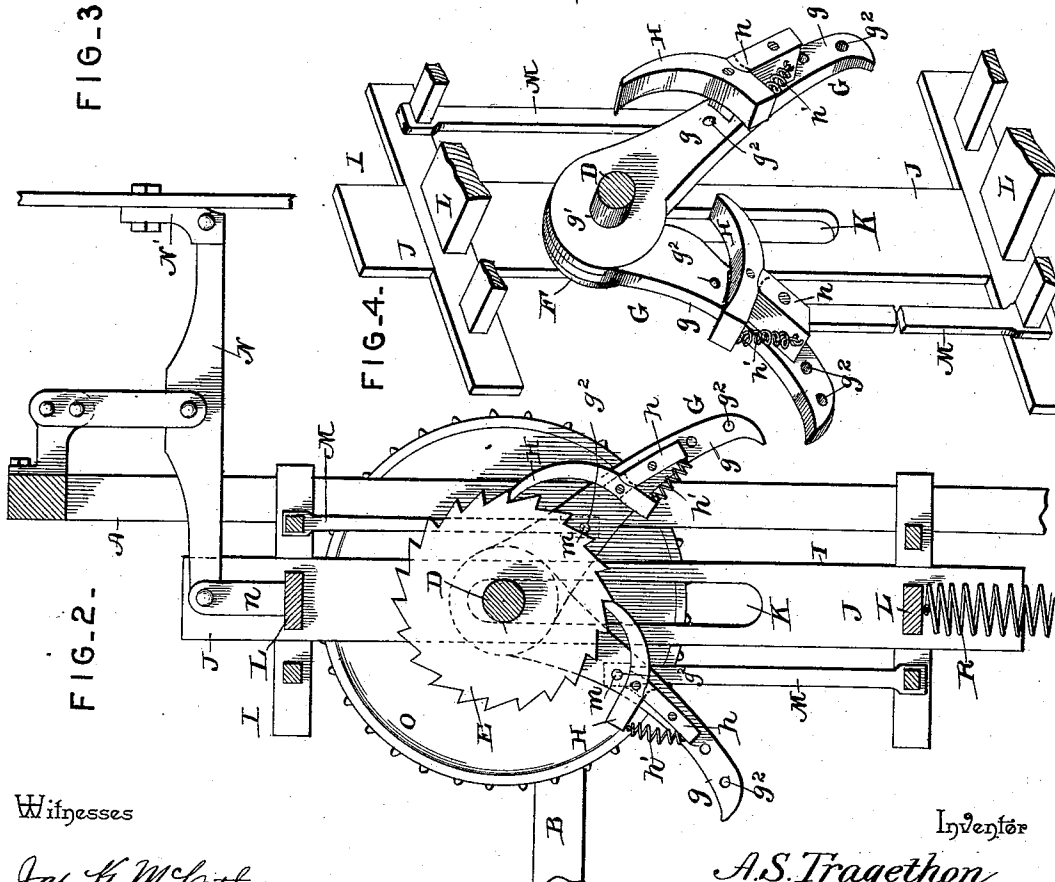


FIG. 4.

FIG. 2-

Witnesses

Jas. H. McLathran
D. P. McLaughlin

Inventor

A. S. Tragethon

By his Attorneys,

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

ARNE S. TRAGETHON, OF KENSSETT, IOWA.

POWER-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 484,066, dated October 11, 1892.

Application filed April 7, 1892. Serial No. 428,187. (No model.)

To all whom it may concern:

Be it known that I, ARNE S. TRAGETHON, a citizen of the United States, residing at Kenssett, in the county of Worth and State of Iowa, have invented a new and useful Power-Transmitter, of which the following is a specification.

This invention relates to power-transmitters, and particularly to those used in connection with windmills for transmitting power to grinding or pumping apparatus; and it has for its object to provide an improved device of this character by which the power received from the windmill will be converted into a continuous and rapid rotary movement.

To this end it is the main object of this invention to generally improve upon the construction and operation of power-transmitting devices.

With these and many other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a plan view of a power-transmitter connected with a grinding-mill and constructed in accordance with the present invention. Fig. 2 is a vertical longitudinal sectional view of the power-transmitter and a portion of its supporting-frame. Fig. 3 is a vertical transverse sectional view thereof. Fig. 4 is a detail in perspective of the reciprocating frame and a section of the swinging pawl-carrying frames and a pair of the pawl-levers connected therewith.

Referring to the accompanying drawings, A A represent opposite vertical frames supporting the horizontal frame-pieces B. The said horizontal frame-pieces B are provided near one end alongside of one of said vertical frames A with the boxes C, in which are journaled the ends of the horizontal rotating shaft D. Centrally secured to said horizontal shaft D is the intermediate actuating ratchet-wheel E, from which motion is communicated to the shaft D by the mechanism to be described. On each side of the ratchet-wheel E and be-

tween the collars F, secured to said shaft, are the opposite swinging pawl-carrying frames G. The said pawl-carrying frames G comprise the opposite parallel arms *g*, having perforations *g'* at one end, loosely taking over the shaft D on each side of the ratchet-wheel, and also provided with a series of adjustment perforations *g''*, arranged longitudinally therein. Pivoted between the arms *g* of each pawl-carrying frame in front of the ratchet-wheel are the driving-pawls H, one pawl in one frame being adapted to engage the ratchet-wheel on one side, while the opposite pawl is running freely over the teeth on the other side of the wheel, so that when the swinging pawl-carrying frames are raised only one of the pawls engage the ratchet-wheel to rotate the shaft, while, on the other hand, when the said frames are lowered the opposite pawl engages the ratchet-wheel to rotate the shaft in the same direction. Located directly behind the driving-pawls H and within the carrying-frame are the pawl-stops *h*, which prevent the said pawls from swinging too far forward or backward, said pawls being connected with said stops by the springs *h'*, which normally hold the pawls in engagement with the teeth of the ratchet-wheel.

Working over the shaft D, outside of the collars F, is the vertically-reciprocating frame I. The said frame I comprises opposite connected parallel bars J, each provided with elongated longitudinally-disposed slots K, working over the shaft D as the frame reciprocates. Said bars are connected at their upper and lower ends by suitable connecting-bars L, the upper of which is connected with the windmill-rod, which reciprocates the vertically-reciprocating and slotted frame. Pivotaly secured at one end to the upper and lower ends of the reciprocating frame I are the opposite pairs of connecting-rods M. The rods M are provided at their free ends with the inwardly-projecting pins *m*, which are designed to engage any one of the series of adjusting perforations *g''* in each of the parallel arms *g* of the pawl-carrying frames. The said rods are arranged in pairs on each side of the shaft and connected with each of the

pawl-carrying frames, as described. One of the rods connected to the upper end of the frame upon one side of the shaft is connected with one of the parallel arms of the pawl-carrying frame upon the same side of the shaft, while the rod connected to the lower end of the reciprocating frame upon the same side of the shaft is connected to the other arm of the pawl-carrying frame, which is clearly seen in sectional view, Fig. 3, of the drawings. The order is reversed on the otherside of the shaft; but one rod is also connected with one arm of the pawl-carrying frame, while the other rod is connected to the other arm. Thus it will be readily seen that as the reciprocating and slotted frame is raised the upper one on each side of the shaft pulls the opposite swinging pawl-carrying frames upward, while the lower rods tend to lift the same in the same upward direction, while, to the contrary, when the reciprocating frame is lowered the upper rods push the pawl-carrying frames downward, while the lower rods pull said frames in the same direction. As the said reciprocating frame is rapidly reciprocated from the windmill, the rods M will carry the opposite swinging pawl-carrying frames rapidly up and down over opposite sides of the ratchet-wheel E, and on account of the disposition of the pawls one of the same will be continuously in engagement with the said ratchet-wheel, and both pawls will always drive the said wheel in one direction, so that the shaft D will be continuously and rapidly driven.

A horizontal lever N is centrally and pivotally supported to a suitable point of attachment above the upper end of the reciprocating frame I, and one end thereof is loosely connected to the block n, fitted in the upper end of said frame, while the opposite end of said lever is loosely connected to the attachment-plate N', which is connected to the windmill-rod, whereby a reciprocating motion is given to the vertically-reciprocating frame I, while at the same time the windmill-rod may be connected directly to the pump-rod and not interfere with the operation of the transmitter, which is employed to operate other machines. Although this connection is preferred, yet it will be readily seen that the said reciprocating frame can be directly connected to and operated from the windmill-rod. Securely keyed to the driving-shaft D outside of the driving mechanism thereof is the drive-chain wheel O, around which passes the driving-chain P, which is connected with the driving-pulleys of the grinding-mill Q, located within the framework supporting the transmitter.

It will be readily seen that both strokes of the windmill-rod are fully utilized by the power-transmitter and that a number of revolutions of the drive-wheel is obtained at every single stroke of the windmill-rod, and in this connection it may be noted that by adjusting

the connecting-rod to and away from the ends of the opposite pawl-carrying frames the speed of the driving-wheel can be regulated at will.

The operation and many adaptations of the herein-described power-transmitter are thought to be quite apparent, and it will be readily seen that the same can be used in connection with any other machinery to be driven as well as the grinding-mill illustrated. In order to insure greater efficiency in operation, a spring R is secured to the bottom of the reciprocating frame I and the bottom of the supporting-framework, so that a greater force will be given to the downward stroke of the windmill-rod and the operation of the transmitter greatly assisted.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a power-transmitter, the drive-shaft, a ratchet-wheel secured to said shaft, oppositely-swinging pawl-carrying frames straddling said ratchet-wheel and loosely connected with the shaft on each side of said wheel, spring-actuated pawls mounted in each of said opposite frames and moving over opposite edges of the ratchet-wheel, and a vertically-reciprocating slotted frame working over said shaft and connected with said pawl-carrying frames, and opposite pairs of raising and lowering rods loosely connecting said pawl-carrying frames to the ends of said slotted frame, substantially as set forth.

2. In a power-transmitter, the combination, with the shaft and the ratchet-wheel secured thereto, of oppositely-swinging pawl-carrying frames straddling said ratchet-wheel and provided with a series of perforations in opposite sides thereof, oppositely-working pawls pivoted within said frames on each side of the ratchet-wheel, a vertically-reciprocating slotted frame working over said shaft and extending above and below the same, and connecting-rods pivoted at their ends in pairs on opposite sides of the shaft to the upper and lower ends of the reciprocating frame, respectively, and provided at their inner ends with inwardly-projecting pins engaging the perforations in said pawl-carrying frames, substantially as set forth.

3. In a power-transmitter, the combination, with the shaft and the drive-chain wheel thereon, of the ratchet-wheel secured to said shaft, oppositely-swinging pawl-carrying frames loosely connected at their inner ends to said shaft on opposite sides of the ratchet-wheel and provided with a series of perforations in opposite sides thereof, opposite spring-actuated pawls pivoted within said frames, a vertically-reciprocating frame having longitudinally-disposed slots working over said shaft, connecting-rods arranged in pairs on each side of the shaft, one of each pair of rods being loosely connected to the top and the other rods of each pair with the bottom of the

frame, all of said rods being provided at their inner ends with inwardly-projecting pins engaging the perforations in said pawl-carrying frames, and a spring connected to the
5 bottom of said reciprocating frame and a suitable point of attachment, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ARNE S. TRAGETHON.

Witnesses:

N. E. HANGEN,
T. IOLD.